WHAT IS CLAIMED IS:

1. A polishing pad comprising:

a polishing body comprising a material wherein said material is a cross-linked polymer.

2. The polishing pad as recited in Claim 1 wherein said cross-linked polymer is a thermoplastic foam.

3. The polishing pad as recited in Claim 1 wherein said cross-linked polymer has a closed cell structure.

4. The polishing pad as recited in Claim 3 wherein said cross-linked polymer is polyethylene.

5. The polishing pad as recited in Claim 1 wherein said polishing body includes a base pad and said cross-linked polymer forms a polishing surface located over said base pad.

6. The polishing pad as recited in Claim 1 wherein said cross-linked polymer is a polyethylene having a closed cell structure.

7. The polishing pad as recited in Claim 1 wherein said cross-linked polymer has a hardness ranging from about 34 Shore A

to about 60 Shore A.

8. The polishing pad as recited in Claim 1 wherein said cross-linked polymer has a selectivity of Cu to Ta removal rates of greater than about 27:1.

9. A polishing apparatus comprising:

a mechanically driven carrier head;

a polishing platen, said carrier head being positionable against said polishing platen to impart a polishing force against said polishing platen; and

a polishing pad attached to said polishing platen and including a polishing body comprising a material wherein said material is a cross-linked polymer.

10. The polishing apparatus as recited in Claim 9 wherein said cross-linked polymer has a closed cell structure.

11. The polishing apparatus as recited in Claim 9 wherein said cross-linked polymer is polyethylene.

12. The polishing apparatus as recited in Claim 9 wherein said polishing body includes a base pad and said cross-linked polymer forms a polishing surface located over said base pad.

13. The polishing apparatus as recited in Claim 9 wherein said cross-linked polymer is a polyethylene having a closed cell structure.

14. The polishing apparatus as recited in Claim 9 wherein

said cross-linked polymer has a hardness ranging from about 34 Shore A to about 60 Shore A.

15. The polishing apparatus as recited in Claim 9 wherein said cross-linked polymer has a selectivity of Cu to Ta removal rates of greater than about 27:1.

16. A method of polishing a substrate comprising:

positioning a substrate having at least one layer of material located thereon against a polishing pad attached to a polishing apparatus wherein said polishing pad includes a polishing body comprising a cross-linked polymer; and

polishing said at least one layer of material against said polishing pad.

17. The method as recited in Claim 16 wherein polishing said at least one layer of material includes polishing a metal layer.

18. The method as recited in Claim 16 wherein polishing said metal layer includes polishing a layer selected from the group containing:

copper; and

tungsten.

19. The method as recited in Claim 16 wherein said substrate includes another layer located under said metal layer and polishing includes removing said metal layer and removing at least a portion of said another layer and said method further includes determining an endpoint of said polishing of said metal layer by determining a change in a coefficient of friction between said metal layer and said another layer.

20. The method as recited in Claim 16 wherein said substrate includes another layer located under said metal layer and polishing includes removing said metal layer and removing at least a portion of said another layer and said method further includes determining an endpoint of said polishing of said metal layer by determining a change in an acoustic signal between said metal layer and said another layer.

21. The method as recited in Claim 16 wherein positioning a substrate includes positioning a substrate located on a semiconductor wafer against said polishing pad.

22. The method as recited in Claim 16 wherein said cross-linked polymer has a closed cell structure.

23. The method as recited in Claim 16 wherein said cross-linked polymer is polyethylene.

24. The method as recited in Claim 16 wherein said polishing body includes a base pad and said cross-linked polymer forms a polishing surface located over said base pad.

25. The method as recited in Claim 16 wherein said cross-

linked polymer is a polyethylene having a closed cell structure.

26. The method as recited in Claim 16 wherein said cross-linked polymer has a hardness ranging from about 34 Shore A to about 60 Shore A.

27. The method as recited in Claim 16 wherein cross-linked polymer has a selectivity of Cu to Ta removal rates of greater than about 27:1.